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PART I

INTRODUCTION

The Province of Yün-nan

Yün-nan 雲南 (South of the clouds) is the second largest province of China, and is situated in the extreme south-west of that vast country. Its area is approximately 146,700 square miles, and in 1933 it had a population of 11,795,486, or about 80.4 persons to the square mile. Of this population 6,095,549 were male, and 5,699,937 were female, and 88.88 per cent of the entire population was illiterate.

In the north it borders on Ssu-ch'uan 四川 and Hsi-k'ang 西康, in the west on Hsi-tsang 西藏 (Tibet) and Mien-tien 緬甸 (Burma). In the south it adjoins the south-eastern Shan States of Burma and also Indo-China, while in the east it borders on the Chinese provinces of Kuei-chou 貴州 and Kuang-hsi 廣西.

Yün-nan is a high table-land, intersected by some of the largest rivers of Asia, such as the Yangtze, Mekong, and Salween, and by the eastern branch of the Irrawadi (the Ch'iu Chiang 球江 of the Chinese) in the extreme west. These rivers flow parallel to each other for a considerable distance in terrific gorges. The intervening mountain ranges, which in the extreme north-west reach heights of 22,000 feet, are crowned by eternal snow. Of these the Mekong-Salween divide forms, in part, the Tibet – Yün-nan border. The altitude increases in the north-west, and we find towns at 11,500 feet elevation.

In the south, the province is partly covered with tropical jungle where tigers roam and malaria is prevalent, and where the Tai or Shan hold undisputed sway, as no Yünnanese will live below an altitude of 4,000 feet. Here the water-buffalo is at home, and rice is the main crop.

In the north the yak grazes on the high alpine meadows, and barley is grown at 12,000 feet. The yak furnishes the inhabitants with meat, milk, butter and cheese; its dung (argols) is used as fuel and its hair for the weaving of cloth for tents; it also serves as a transport animal. Here barley takes the place of rice and is the staple food of the Tibetans.

The capital of the province is Yün-nan fu, situated at an altitude of 6,400 feet, on a large plain surrounded by mountains. Near it is the famous lake known as Tien Ch'ih 滇池 or K'un-yang 昆陽. To-day Yün-nan fu is called K'un-ming 昆明, which, during the reign of Han Wu Ti, was the land of I-chou Chün 益州郡. While the name K'un-ming is an ancient one it seems not to have been applied to the land which bears that name to-day prior to the Yüan (Mongol) dynasty. The *K'un-ming hsien chih* speaks of three K'un-mings. In the oldest geographical record of Yün-nan we read, however, that the name K'un-ming had first been given to the lake at Yün-nan fu by General Chuang Ch'iao of the State of Ch'u in about 280 B.C. (*see* Note 3, page 6).

As this is not a history and geography of the whole of Yün-nan, but only of a specified area in its north-west, namely the region now occupied by the Mo-so

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with scrub vegetation; beyond a high, bare range rises above it, with a black, sharply-pyramidal rock forming the highest point.

We reach a hamlet of a few houses constructed of red earth, built close together like a fortress, with the windows near the roof, the latter crowned by huge mounds of grass. Yak were grazing over the bare, dry fields. Below in the ravine is the Tibetan village of Yo-nyi (Yo-i 約宜; in Yün-nan pronounced Yo-ni) with its terraced fields, grey and dusty. We descend and follow at the bottom of a narrow, rocky valley, bare of vegetation with the exception of *Sophora viciifolia* bushes, till we reach the Tibetan hamlet of Sha-dung (Sha-tung 沙東). Here walnuts and willows grew along the fields. To the east is the trail to Pong-tse-ra, and to the west the trail which leads to the Kar-ri (Keng-li 亘里) Pass. At Sha-dung we cross the stream which descends from the Kar-ri La and follow the valley on the south bank. Near the mouth of this lateral valley is a formidable dwelling with a golden spire, the compound is surrounded by a wall on which Tibetan mastiffs were racing wildly up and down. It is the residence of a Huo-fu (incarnation of the Tung-chu-lin lama).[10]

The trail enters an arid and weird, ravine with loose rocks and boulders scattered over the slopes to the very top. It is narrow and one li beyond its mouth it is blocked by an isolated, pyramidal hill crowned by a *Shan-shen Miao* 山神廟 (Shrine to a mountain spirit). Here the stream makes a detour to the left; to the right a barren valley opens out near the temple-crowned hill, covered with cactus (*Opuntia monacantha*). What little vegetation there is consists of Berberis, Sophora, and the small-leaved *Bauhinia densiflora*, while deciduous willow trees line the banks of the stream. *Pteris longifolia* is also common. On the right hill-side is a conglomeration of houses resembling watch-towers. It is the hamlet of Pe-shin. Dogs run around wildly on the flat roofs, barking viciously at the traveler in the deep and narrow ravine. It would be easy to stop an army here by rolling down the loose rocks which lie in myriads on the valley slopes. Beyond Pe-shin the slopes are composed of disintegrated shale and fine grey dust resembling ashes.

Farther on, the valley divides, the right-hand branch being quite barren; the trail follows up the left branch and here, at the mouth of the valley in a specially constructed shed three large cylindrical prayer-wheels, eight feet long and one foot in diameter, dressed in red and white skirts, whirled around like mad, driven by the stream. Further up the valley was another set, but these were out of commission. For 10 li the trail leads through this rocky, ever-narrowing ravine, till we come to the fortress-like Tibetan hamlet of Sha-yi (Shou-i-ts'un 設義村), situated on a flat spur above the river. At one end of the village is a lama shrine or small temple, with a golden roof and spire, probably the private chapel of the Tibetan T'u-ssu who resides here.

Near Sha-yi the trail passes through *Pinus Armandi* forest which later gives place to *Quercus semicarpifolia* trees, with here and there a *Rhododendron decorum*, several deciduous trees, rose-bushes, Caragana, etc. The mountains rise steeply, the stream is ice-bound (December), and at an eleva-

[10] The Huo-fu is a member of the family of the T'u-ch'ien-tsung of Pong-tse-ra, who also resides here.

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(Courtesy Nat. Geogr. Soc.)

PLATE 333. — YUNG-NING FIEN-NIU OR HALF-BREED YAK

永寧犏牛, 犏牛與犏牛雜種

Half-breed Yak or Dzo (mDzo), a cross between a domestic cow and a Tibetan Yak, grazing on the alpine meadows of Wua-ha Shan, Yung-ning, elevation 11,500 feet. Mount Dzo-an-p'ù in the distance.

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788 842 Again, a calf from the Spring ox (see chapter on the Four Seasons) may be presented. This dummy calf is obtained as the result of much wrangling, put in a sedan-chair and taken with music and fire-crackers to some childless family.

At the service held for the release of a soul three basins of rice are used. At the close of the ceremony these bowls of rice are wrangled for, the strongest or smartest getting them. A basin of this rice is then taken to the house of a childless friend, who puts it on the family altar and worships it in the hope that a son may be born to him.

At the end of the Feast of Lanterns the eyes of the dragon lantern, or the *pao* 寶, precious thing from the dragon's mouth, or the eyes of the lion lantern may be presented, and are considered very efficacious. (See under New Year).

231 842 788 When a family pig gets measles the owner makes a vow at the shrine of Hung-chu hsien 紅猪仙, (an image of a man riding a pig). If the pig gets well a paper pig is offered as thanks. This paper pig is often taken afterwards to the home of a son-less family.

These beliefs are very real. I know several people who bear the name of *chu êrh-tzŭ* 猪兒子 or *niu êrh-tzŭ* 牛兒子, pig-son or calf-son, because they were born after the calf or pig had been taken to their homes.

842 778 753 At the *Tien shih tung* 天師洞 temple there is a famous *pai-kuo shu* 白菓樹 (ginko tree), twigs of which are much used for the same purpose; but any trees which have shown healing virtues 顯神 *hsien shên* are used. The twigs are kept on the family altar for months at a time in hope that a son may be the result. Some trees gain a sudden notoriety through the priests paying someone to hang up red cloth and paper boots with a false statement that they have been healed of disease through worshipping the tree.

842 778 Sometimes one of the Eighteen Lo-han is taken from a temple and given to a childless pair. If a son is born this idol is returned to the temple with a fresh coat of paint on it and with an offering. The priests like this, as it gives the temple a reputation and increases the number of their devotees.

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545 In shadow plays, *têng ying hsi* 燈影戲, the figures are made of leather and the performance is generally held at night. The court-yard of a house is curtained round with white calico; within there is light, without it is dark, and the figures are manipulated so that the shadows fall on the screen for the spectators outside to view.

In the *pei tan* 被單 *hsi* or sheet play the actors screen off a small enclosure with black calico and display a small wooden puppet over the top of it. The puppets are worked by strings attached to legs, arms, tongues, etc. The showmen are trained ventriloquists, and make their puppets dance and kick about in most amusing fashion; the figures are called *shên t'ung-tzŭ* 神童子, because they are so smart and acrobatic, and they are probably procured in the same way as those of the Punch and Judy shows.

There are amateur theatrical companies composed of local actors or farm labourers with a gift for singing or acting, and called *têng pan-tzŭ* 燈班子. Many join such a troupe to have a gay time of running round the countryside; the rustics call these escapades *sao têng* 臊燈. Such companies only get about 5000 cash for a day's performance.

[533] Street singing is termed *pan têng* 板凳 *hsi* (stool concert), or *wan yu hui* 玩友會 (friendly society), or *wei ku* 圍鼓, (round the drum).

The peepshow, *hsi hu* 西湖 *hsi* (west lake show) is a box with glaring pictures outside, and peepholes through which those who pay may look at the pictures inside, these being brought into view in turn by means of a handle.

Performers go from door to door getting a single cash at each for making a puppet dance up and down by the motion of a fan; *shan tzŭ* 扇子 *hsi*.

545 231 Others go from house to house with a monkey, a dog and a box of paraphernalia. Money for a performance having been paid down the performer directs the monkey which opens the box, dresses itself, and rides the dog or drives it hitched to a miniature plough.

Theatricals are given in each parish in front of the *Yang miao* 秧苗 *t'u ti* or local god of sprouting grain, in order to keep insects away from the growing crops.

A person is taken near a wall, then blindfolded, turned round several times, and told to walk to the wall; *mo chao pi* 摸照壁. 524

Blindman's buff, *ta hsia mo* 打瞎摸; hide and seek, *ts'ang mao mao* 藏貓貓 (the seeker being the *mao* or cat); marbles, *tan tan tan* 彈; turning cart wheels, or turning like a kestrel *ta yao-tzŭ fan shên* 打鷂子翻身; a kind of hockey *ta ch'ou niu* 打臭牛, 'to hit the stinking ox'; top-spinning, *ch'ai ti ko tzŭ* 扯地鴿子; swinging, *ta ts'ui* 打鞦; are all familiar pastimes.

Kiteflying, *fang fêng-chêng* 放風箏 in the second moon is done by grayheaded men as well as by children. The kites are in the shape of eagles, bats, etc., etc., and if one should fall on a house it is unlucky and no one dare claim it.

The shuttle-cock in the game *t'i chien-tzŭ* 踢毽子 is a brass cash with a few feathers attached; it is kept in the air by using the side of the foot for a battledore. Experts turn round once after each kick.

To turn to a different class of pastime: eagles are kept for catching birds and rabbits, *fang ying* 放鷹. The sport is so exciting that a proverb says: 'After seeing an eagle catch a rabbit the glory of an official career sinks into insignificance.' 224 231

Game is hunted with a kind of setter, *fang lieh ch'üan* 放獵犬 or *fang nien shan kou* 趁山狗. These dogs have long tapering noses and slight bodies.

The musk-deer is hunted, *shuan chang-tzŭ* 拴獐子 for the musk. A coolie carrying a small quantity of musk can easily be detected by the smell. The deer horns are sold for medicine and the skin for leather.

Jackdaws and various other birds are kept for fighting purposes *fang ch'üeh ta ts'ai* 放鵲打彩; which means gambling. 525

Practising with bow and arrows, *ts'ao kung chien* 操弓箭 is a sport now going out of use. So is the exercise of the heavy knife, *shua ta tao* 耍大刀. These knives weighed 80 to 140 catties, and even more. 411

Many pets are kept, such as the green parrot, *ying ko* 鸚哥; the Liao-tung or black parrot, *liao ko* 遼哥; the 231

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23) canary *pai yen* 白燕; the quail, *an shun* 鵪鶉; monkeys *hou tzŭ*, 猴子 which are said to be better than dogs as a protection against thieves; rabbits *t'u tzŭ* 兎子, generally in narrow-necked crocks sunk in the ground; pigeons *ko-tzŭ* 鴿子, some of the best carriers returning home from 1000 *li* or more; they are often sold, and as they always go home again good profit is made; white mice which drive little wheels in their cages; stove crickets, *tsao chi-tzŭ* 竈鷄子; and 'ocean insects,' *yang ch'ung* 洋蟲, which are said to cure tuberculosis. I do not know what these insects really are.

The Chinese are great bird-fanciers and pet-keepers, and domesticate many birds besides those above mentioned. Lotteries, smoking, snuffing, etc., are other amusements; it is a nation of smokers. Probably the dismal homes make the people love the pipe, and the crudeness of medical science makes them take to opium.

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RIDDLES AND DITTIES. 謎子, 歌兒 *mi tzŭ, kō êrh.*

青幽幽　黑洞洞　十個牯牛拉不動

Of a dark green, in a black cave, which ten oxen cannot move, What is it? (A well.)

千節節　萬節節　千年萬年不落葉

With a thousand joints, even ten thousand joints. For a thousand or ten thousand years it does not lose its leaves. (The bamboo.)

金筅筅　銀絲絲　一搥打開四姊妹

A golden and silver floss: one stroke of the hammer and it becomes four sisters. (A walnut.)

十姊妹　同路要　各人頭上頂片瓦

Ten little sisters went out for a walk,
On the crown of each a tile is fixed. (The fingers.)

頭戴紅頂子身穿白袍子走路很斯文說話像蠻子

On his head he wears a red button, his body is clothed with a white robe, his walk is like an elegant scholar's, but his talk is like a barbarian's. (The goose.)

各家窩頭一個滿一根白蛇在裏頭放要死要死又捉他一棒

In each family niche there is a pool, in which a pure

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of their deliberations had been that the *ch'ai* was to go to Mêng-hua and report there that I had arrived in that district. So he accordingly went his way on to the town after a last ineffectual attempt to persuade me to go there too.

One of the village police from Hsün-chien came with us as far as Tien-chung-kai, where our route left the main road, and from there we had no difficulty in getting a man, also a village policeman, to show us the way across the hills.

The road led up to the top of the range at a low gap (7,500 feet), from here down a narrow valley with steep and in some places wooded hills on either side, and finally up half a mile of stiff ascent to the village of Wu-li-hei. I put up in a very comfortable house owned by one of the principal men of the village, who lets travellers sleep there for a consideration.

The inhabitants of the place are a tribe of Lo-los called by the Chinese Mêng-hua Lo-lo or simply Mêng-hua Jên (i.e. Mêng-hua men). Their houses are built of mud and stone, all packed very closely together, and there is nothing in the appearance of the place to distinguish it from a Chinese village. They have in fact taken very much to Chinese customs and the men dress exactly like Chinamen; they can all speak Chinese, and some of them can also read and write it. The women have retained their tribal costume. Their dress consists of a sleeveless blue coat, and a blue skirt with trousers underneath it, the skirt and trousers reaching only down to the knee. The Mêng-hua Jên still use their own language among themselves, and a vocabulary that I took down in this village will be found in the pocket of the cover. They seem very well off; their houses are large, and they own considerable numbers of mules, ponies, cattle, buffaloes, and goats. This particular branch of the Lo-lo family occupy the greater part of the hills of the Mêng-hua district.

For the next two days our road led us through a mountainous country, the hill-sides sometimes bare and sometimes covered with pine forests, the inhabitants principally Lo-los. At the little village of Lu-chu-t'ang we joined into the main road from Mêng-hua, and early on the 10th we reached Sha-sung-shao, the first village in the Shun-ning district. From here there is a long bit of

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000 were lodged. Two days of easy marching down the valley of the Pei-ch'iao Ho brought us to Yün Chou. Though this town is 1,600 feet below Shun-ning, the descent is so gradual as to be hardly noticed. At the end of the second march the road passes through a gap in a spur and comes suddenly on the town, within 100 yards.

361 438 It is built at the junction of the Pei-ch'iao Ho with the Nan-ch'iao Ho, a somewhat larger stream which runs up from the south and eventually flows into the Mekong. The town is surrounded by a soft brick wall, 12 feet high, not kept in very good repair. It contains about 800 houses, and is a larger and more prosperous place than Shun-ning. The population includes a good many Panthays and they form the principal commercial element. The trade is not very large and is almost entirely confined to dealings with the Shan States of Mêng-sa, Kêng-ma, and Mêng-ting, and with the Panthay settlement at Pang-long in the Northern Shan States.

294 438 One of the principal articles of local produce is a curious kind of waterproof coat called *tso-yi*, much used by the poorer classes in Yün-nan. It is made out of the outer fibrous bark of a sort of palm tree, called *tsung-pao* by the Chinese. At the first glance it might easily be taken for the skin of some long-haired animal.

635 Yün Chou, like Shun-ning, was formerly a Shan state. Its Shan name is Möng Yü, and there are still a few families of that race living in the plain. The Yün Chou 241 plain is much cut up by uncultivated spurs which run out into it, but good crops of beans and sugar-cane are grown. The latter is a specially valuable product in Yün-nan, as it will not grow in the higher and colder plains.

231 On the march from Shun-ning, at the village of Jê-shui-t'ang, I saw a most curious freak of nature, a buffalo with five horns. Two of them were of the ordinary pattern, the other three grew out of the centre of his forehead, two going straight up in the air close together, and the third sticking straight out to the front. The three superfluous horns had been sawn off rather short, but there was no doubt about the fact that they were there.

000 We left Yün Chou again on the 18th February and ascended gradually, reaching the Mekong-Salween water-

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753 men suffered from fever at all. These places are doubtless somewhat feverish, but the Chinese exaggerate their unhealthiness.

000 The next day we followed the plain down for some distance and then turned in a westerly direction over some grass land into Möng Chi, a district of Möng Hkwan lying along the narrow valley of the Nam Chi. The Chinese call it Hsien-kang.

On the 8th we climbed a range to a height of 6,500 feet, when at about nine o'clock it came on to rain very heavily, so, finding a large temple in the Chinese village of Ho-t'ou-ts'un, we stayed there for the night. On the 9th we descended to Möng Yang, another Shan district which forms part of the state of Möng Ti or Nan-tien. It consists of a plain seven miles long, lying along the valley of the Shweli, which is called the Nam Yang by the Shans in this part of its course. The river is here 60 yards wide, and is at this time of year easily fordable by men, but is just deep enough to wet the bottom of mule loads. Möng Yang is called Hsiao-lung-ch'uan by the Chinese; its height is 3,300 feet.

The next day we had a steep climb up a range 5,400 feet high and an equally steep descent to the valley of Möng Hüm, called Lo-pu-ssŭ-chuang or *the four turnip farms* in Chinese, also a district of Möng Ti. This narrow plain we followed down for the rest of the day, passing numerous Shan villages full of large flocks of ducks and geese, which feed in the sandy shallow bed of the Nam Hüm. We slept at Ung-lön, almost the last village in the plain. The headman here said he would give me no guide to Ho-hsa (Hu-sa) as the people were all afraid of the Kachins along the road. Luckily there happened to be two Ho-hsa men sleeping in the same monastery at Ung-lön, and I had no difficulty in getting them to act as guides, as they were going the same way themselves. Our road climbed to a height of 6,350 feet, passing the large Kachin village of Pang-sang. On top of the range is a lot of open grass land, and the road winds about in this for some miles, till the Möng Wan[1] plain comes in sight below. The road,

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[1] Called Lung-ch'uan by the Chinese, or sometimes Ta-lung-ch'uan to distinguish it from Hsiao-lung-ch'uan (Möng Yang).

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fitted with a handle to wheel along the road. These wheels we found most accurate and satisfactory, and we all used them throughout our two seasons of surveying. Spare cyclometers had to be carried as they wear out in time.

On the 29th November I left T'êng-yüeh by the west gate and crossing a bare ridge by a low gap between two conspicuous peaks, descended into the fir-woods of the plateau country of Hsi-lien.

We slept at Mu-shui-ho, and found the country people extremely civil, a pleasant contrast to the T'êng-yüeh mob. One old gentleman was particularly communicative and offered to be my guide the next day to the mule and sheep breeding village of Lu-ts'ung-shan. We had a beautiful walk there in the morning over undulating ground through pleasant woods of fir and other trees, the properties of different families being marked off by stone walls. The villages are quite hidden away in trees—peach, walnut, chestnut, plantain, golden bamboo, and the *tsung-pao* palm[1]. If a railway is ever made to T'êng-yüeh this plateau ought to become the hill station of Burma. Situated at 6000 feet above the sea in a beautiful well-watered country, I can imagine no more pleasant contrast with the scorching sun of Mandalay or the hot mugginess of Rangoon.

The simple villagers of Lu-ts'ung-shan I found rather timid at first, frightened either of me or of the Chinese soldier who accompanied me. But a more talkative man soon appeared. The sheep, it seems, are worth about two taels each (five rupees, or 6*s.* 4*d.*), and they use their wool for making rugs. They have tried taking the sheep to sell at Bhamo, but say that it does not pay. They cannot stand the warmer climate and want of grass in the Taping valley, and many of them die on the way. At present the mutton for Burma all comes from India, but with a railway to T'êng-yüeh, the want could no doubt be supplied from Yün-nan. The mule breeding here does not seem to be on a large scale. They get their donkeys from the province of Shen-hsi, and pay as much as 80 or 100 taels for them, a large price in this part of China.

Agricultural pursuits are not the only occupation of the

[1] See p. 77.

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CHAPTER XXII

FROM WEI-NING CHOU BACK TO YÜN-NAN FU *VIÂ* TUNG-CH'UAN FU.

Part from Watts-Jones—Watershed of the Yangtze and the Canton River—A mass of steep hills—White wax insect—The Niu-lan Chiang—Zinc smelting—Kung shan—Lead, silver, and zinc mines—Tung-ch'uan Fu—Weaving—Copper mines—The Yi-li Ho—A high plateau—Wooded country—Curious rice husking machine—Cuckoos—Hsün-tien Chou—Sung-ming Chou—Lose the way—Reach camp at dark—A country full of pheasants—Reach Yün-nan Fu—Meet Ker—Results of his explorations—Ryder's movements—Arrival of Turner.

WATTS-JONES and I left Wei-ning on the 27th April. Our roads were the same for the first five miles, leading along the northern bank of the Wei-ning Lake, till we crossed its outlet by a bridge at Ta-ch'iao. Here we separated. My road led over undulating ground among clumps of fir trees to the little village of Shuang-lung-ch'iao where I pitched my tent.

On the 28th 18½ miles of hilly marching, over a country sparsely inhabited by Lo-los, brought us to Ch'ing-mo-ti. The next day we crossed a range at 8,150 feet and descended by a path, the last part of which was almost precipitous, to the small village of Ch'ia-hsi-ho.

The ridge crossed on this march is a spur running out from the main range which lies a few miles to the south and forms the watershed of the Yangtze and the Canton River. I do not think I have ever seen such a mass of steep broken hills as this country presents. The hill-sides are very barren and dry, and many of them are too steep to be climbed, so that the roads have to follow the beds of streams. Maize is the chief thing grown by the few villages that there are.

This was the first district in which I came across the white wax insect: most of the villages about here rear

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Photo by Captain W. A. Watts-Jones

Carrying white wax insects

Plate XL

[Face p. 170]

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231 them. They plant a particular sort of tree to breed them on. The insects consist of a soft brown shell full of a mass of very minute grubs. Some of these are kept for breeding and are put into little bundles of straw and fastened on to the tree. These little grubs after about a month come out of the shell and spread all over the tree. In a year's time each of these has produced its nest of grubs, and the crop is gathered and sold to men who come chiefly from Ssŭ-ch'uan and Hu-nan. The price is 20 taels (about £3) for a man's load of 50 or 60 lbs. of insects.

The load being so valuable, great care is taken that the grubs should not be prematurely hatched out of their shell by the heat. The porters travel very quickly and only in the cool of the night. On arrival at their homes in Eastern Ssŭ-ch'uan or Hu-nan, they place the insects out on another sort of tree, and in course of time they come out of the shell and spread over the tree and produce wax. When the deposit is complete, as much as possible is scraped off, and the branches are then boiled so as to extract every particle of wax.

373 The white wax which these insects produce is much valued as it will stand a greater heat without melting than any other substance of this sort. It is used therefore principally in the manufacture of candles, as an outer coating to prevent the candle guttering. The gathering and selling of the crop of insects was in full swing as we passed through this part of the country at the end of April[1].

The next day we crossed the Niu-lan Chiang which is only 40 yards wide at the San-tao-kuai ferry but has a strong current and runs in a deep gorge. This river, which is the outlet of the Yang-lin Lake, is navigated by boats in some parts of its course. It forms here the boundary between Kuei-chou and Yün-nan, so that we were now again in the latter province after having been for the last twelve days in Kuei-chou.

328 The inhabitants of San-tao-kuai get their living by smelting zinc. The zinc ore is placed in conical shaped earthenware cups. When heated, the zinc rises from the ore in the shape of gas and collects on a sort of shelf inside

[1] For a full account of the White Wax Insect see Hosie's *Three Years in Western China*, Chapter XI.

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Continuing our journey the next day, the 17th March, we passed through splendid forests along the course of a stream in which we found a party of Tibetans digging for gold. Leaving this valley we ascended another range, reaching the top at 14,500 feet. Lachman Jadu and I climbed up 500 feet higher and got a fine view of the surrounding country. In the distance to the north-west of us, two magnificent snow-covered peaks towered above the rest to a height that I should estimate as quite 20,000 feet.

From here we descended to K'u-lu[1], a village of perhaps 60 houses and some large monasteries, the biggest place we had seen for many days. The lamas had evidently got news of our coming, for we found a man waiting for us who showed us a house, and room to camp round it, a little outside the main village.

K'u-lu was the most thoroughly Tibetan place we had yet come across, and it was here that I saw yaks for the first time. There was one tied up just outside our camp, which presented a curious appearance in the morning, covered with icicles hanging to its hair all over. So far I had been agreeably surprised with the warm temperature, for even at night there had only been a few degrees of frost, but here at K'u-lu at 12,500 feet it was decidedly colder, and the thermometer fell to 17°.

The people here are thoroughly Tibetan in manners and customs, and very few of them understand any Chinese. They live in large well-built stone houses, calculated no doubt to keep out the cold which is probably often more severe than we found it in March.

The lamas of K'u-lu were very suspicious. They asked me to halt a day so that we might talk things over and arrange for the continuance of my journey. I did not see what in the world we had to talk about and would not agree to this.

The next morning my interpreter went to the village to see about a guide, and was asked into the monastery by the head lama. He found that dignitary having an early break-

[1] Mr Amundsen marks a place called Kang-u about where K'u-lu is. Probably Kang-u is the Tibetan and K'u-lu the Chinese name. See *Geographical Journal* for June 1900.

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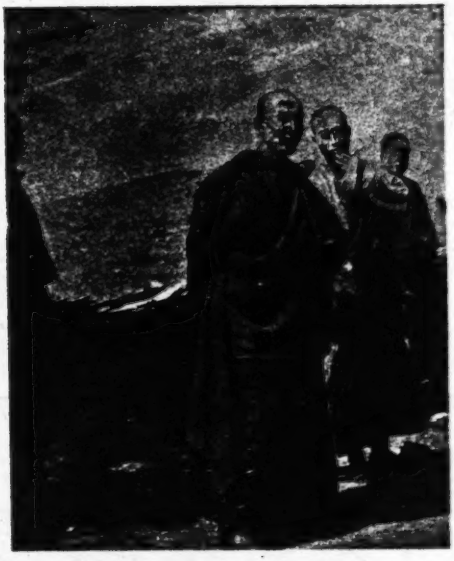

The Mi-li lama prime minister

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Photos by Major H. R. Davies

A tame yak

Plate LV

[Face p. 246]

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crop is dependent on the rain for its water, and where there is any jungle this is cut down and burnt, the wood ashes helping to manure the ground. Maize, millet and buckwheat are also grown on the hills, and opium is one of the chief things cultivated. This latter crop is an easy one to raise, and the produce finds a ready sale. Opium cultivation is certainly increasing in Yün-nan.

Among other agricultural products of the province may be mentioned tobacco, which is largely grown in many districts; tea which comes principally from the Chinese Shan States south of Ssŭ-mao; sesamum and other oil-producing seeds; hemp used for making rope; sugar which will only grow in the lower and warmer valleys; walnuts, persimmons, pears, peaches and other fruits, and many different kinds of vegetables.

As to livestock, there is nothing as big as what we should call a horse, but ponies and mules are kept everywhere. Pack animals are the principal means of transport in the province, so that they form a very necessary possession both to farmers and merchants.

To the farmer cattle and buffaloes also are essential as a means of ploughing his fields, for ponies and mules are never employed for this purpose. In the deep mud and water of the irrigated rice fields buffaloes are the only animals that can do the ploughing.

Unlike the Shans the Chinese do not use bullocks as pack animals. It is true that in out-of-the-way places a farmer may occasionally be seen taking his produce to market with a mule saddle fastened on to a bullock or cow, but this is exceptional. There are no trading caravans of bullocks. In some of the plains of eastern Yün-nan bullocks and buffaloes may be seen drawing small carts, but these can seldom find a road good enough to lead from one plain to another, and are only used for farming purposes.

Nor are cattle considered by the Chinese as of any use for food. The orthodox Chinaman does not kill cattle to eat, and it is only in towns which contain a good many Mahommedan inhabitants that beef can occasionally be got. As to milk it is practically unknown in China. A little is now sold in Yün-nan Fu, but it is only in the Tibetan corner of the province that cows are regularly milked.

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Sheep and goats are found in places all over the province, and in some districts in very large herds. The wool is sometimes made into felt rugs, but the Chinese do not know how to weave it into clothes. There is no reason why wool should not become an article of trade if better communications should make it saleable. Sheep are not sufficiently widely distributed to make mutton a common article of food anywhere.

Pork is the staple meat of Yün-nan, as of the rest of China, and pigs are kept everywhere both in towns and villages. It is a very poor man who cannot afford to mix some pork with his meal of rice. These two articles, with beans and cabbage, form the principal food of the Yünnanese.

As to the amount of livestock in the province I will not attempt to make any estimate. But as mules and ponies form nearly the only means of transport, buffaloes and cattle the only means of ploughing, and pigs the universal food of all classes, the numbers must be considerable. Moreover I do not think that the animals kept amount only to what is absolutely necessary for their owner. Many villagers own large flocks and herds, and the Yünnanese peasant is usually well off as far as possessions go, though he is not rich in money. The poverty of the poorer classes of the over-populated province of Ssŭ-ch'uan is almost unknown in Yün-nan.

We now come to mineral products. It is safe to say that there is no district in the province that does not contain mines, and with better communications Yün-nan might become one of the principal metal-producing countries of the world.

The most important mineral is *copper*, not only because copper mines are very numerous throughout the province, but because the *ch'ien* or cash, the only coin originally used by the Chinese, is made chiefly of this metal. The mines of Yün-nan supply a very large proportion of the copper used for coining, and as the value of the cash is about 400 to a shilling, and it is used throughout China, the demand for copper for this purpose alone is a very large one.

In the districts of Tung-ch'uan Fu and Chao-t'ung Fu are the mines which are at present most productive, but

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Opium is produced in Yün-nan far beyond the requirements of the province, and is largely exported into other parts of China[1]. The opium of Yün-nan is considered by the Chinese to be of very fine quality, though not quite up to the standard of Indian opium. 249

Hemp, which at present is not much cultivated, might easily be extensively grown and exported for rope making. Many kinds of *fruit*, which will not grow in the tropical climate of Burma, thrive in Yün-nan, and even now form a fairly important export. These are apples, pears, quinces, peaches, apricots, cherries, persimmons (dried like figs), chestnuts, and walnuts. Yün-nan *tea* is famous all over China. There is not likely to be much trade in this commodity to Burma, but a railway through to Ssŭ-ch'uan should carry considerable quantities. *Livestock* already forms one of the principal exports from Yün-nan into Burma. Mules, ponies, cattle, and buffaloes are all far cheaper in China than in Burma, so that they can be sold at a profit in the latter country. Sheep are cheap in China, and do not thrive in the warm climate of Burma. At present slaughter-sheep are imported into Burma from India. 245 439 231 439

There are in Yün-nan large grazing grounds which are lying idle because there is not sufficient demand for livestock. If the farmers had a ready means of disposing of their surplus animals, the flocks and herds of the province would doubtless largely increase. Moreover the trade which now exists in *horns* and *hides* would grow at the same time, and *wool* might become a most important article of export. 237 439

Among minor exports in which a considerable trade might spring up may be mentioned *pigs' bristles*, *ducks' feathers*, and the *white of eggs* for albumen; also from the Tibetan part of Yün-nan *furs* and *musk*.

As to minerals, *gold* has always been an article of export, chiefly in the form of gold-leaf to gild the Burmese pagodas. Whether *other metals* could be profitably brought into Burma or India is a question that cannot be decided till the mines have been more thoroughly examined, but 316 439

[1] This was written before the recent restrictions on opium-growing. See footnote on p. 311.

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241 If one may admit color as one of the elements of the landscape of a region, one certainly cannot ignore it in the agricultural landscape of the Szechuan Basin. In fact the unusual combination of color in the agricultural areas adds much to the charm of the Basin. The bright red, purple, and chocolate-tints of the soil, the fresh-green of the grain crops, vegetables, and flowers, the brilliant yellow of the rape, the white-but-spattered-with-yellow-and-pink flowers of the tung trees, the snow-white color of the white-wax trees, and many other colors silhouetted against the ever-present dark-green background of the luxurious vegetation throughout the Basin, all add to its special picturesqueness.

• 231 The normal assortment of livestock life on the farms is a second noticeable feature of the rural scene in the Basin. Fowls, geese, ducks, pigs, bees are especially prevalent. Horses and mules are few. Oxen and water-buffalos are the most important animals on the farm. The buffalos particularly serve in various capacities, such as to plough and to burrow the rice fields, to mill the grains, to press the oils, and to perform a hundred and one other duties. Aside from human beings, they are really the other important "flesh-motors" of the Basin. On the farms, herds and herds of such bulky, slow-moving, long-horned buffalos may frequently be seen (Fig. 16).

235 Duck rearing is another activity of importance (Fig. 17), particularly in the Chengtu Plain. During the months of November and December one may see enormous flocks of ducks being driven slowly over the flooded paddy fields of Chengtu Plain. They feed on the aquatic life in the waters as they are driven along. In two or three months the flocks arrive at Chengtu, fat for market, and at no one's expense!

5. The Character and Distribution of Cities and Towns

361 One of the outstanding features of the urban settlements of the Basin is that most of the relatively important urban units of the Basin are situated on the terraces near the banks of the principal streams (Fig. 7). For instance, beginning from Feng-chieh up to I-ping, following the Yangtse Valley, one may count no less than fifteen of these urban units, including the most populous cities and trading towns of the Basin (Fig. 7). The

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251 The process of preparing Cho Tsai is interesting. It is dried (by solar radiation), specially treated with salt and other ingredients (somewhat fermented), seasoned with pepper, and packed in air-tight tanks for export. Like Sunkist oranges from California in the United States, this unique product, "Szechuan Cho Tsai," has been for years the best advertisement for the name of "Szechuan" in many parts of the Far East.

4. Livestock Production and Special Animal Products

231 This term, livestock production or animal husbandry, has a special meaning as used in oriental agriculture. Livestock production here in the Basin, like in many other parts of China, is concerned only with the quick-growing food stock, the species that are easily cared for and do not require special feed. These normally include pigs, chickens, ducks, and some geese. While some cattle and sheep are raised here, they are seldom used for dairy products as in the West.

According to the recent report of the Bureau of Central Agricultural Research, for every one hundred farming families in Szechuan Basin there are 40 water buffalos, 17 head of cattle, 2 horses, 39 goats, 2 sheep, 169 pigs, 366 chickens, 149 ducks, and 20 geese.[1]

237 a) Bristles.--In the western commercial world, bristles, like silk and tea, during the past years has always been associated with China. The principal producer of this well known Chinese product is Szechuan Basin. Normally the Basin supplies about one-fourth of the total export of all Chinese bristles, including 15,000 piculs of black and 4,000 piculs of white bristles. Among all the outstanding exports from the Basin, bristles is the only one that has always maintained a predominant position. It now alone comprises about one-fourth of the total value of the export trade of the Basin.[2]

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[1] Report of the Bureau of Central Agricultural Research (1939), p. 42.

[2] The export of bristles has jumped from eighth to fourth place in China's foreign trade since 1939, next only to raw silk, egg products, and tungsten. Szechuan Basin has been the largest producer, contributing about 40 per cent of the total export of this product (cf. J. H. Huang, "An Analysis of Foreign Trade of Bristles of Szechuan," Journal of Foreign Trade, March, 1941).

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237 Basin, 70 to 80 per cent of the total production was exported as raw materials. But during recent years, since the rapid growth of local tanning industries, the hides are mainly used for manufacturing shoes, boxes, and other leather products consumed in the Basin.

Besides, the buffalo horns are also commonly utilized in Chengtu and other districts for the manufacture of a great variety of articles for everyday household use.

c) Sheep hides and wool.--There are two kinds of sheep hides produced in the Basin, namely, the garment-making hide, produced in the Sung-Pan area at the northwest edge of the Basin, and the leather-making hides, produced in the Chengtu and Wan-hsien areas (Fig. 39). Normally, the total annual output of sheep hides is around 30,000 piculs. In 1935 the Basin exported 1,500,000 sheep hides, at a value of $1,500,000.[1] Normally, the United States takes about 40 per cent of the total export, with Great Britain, Japan, Germany, and France following in order.

A large quantity of wool, totaling nearly 40,000 piculs annually, is produced in the Basin. Sung-pan, Li-fan, Wen-chuan, and other districts at the west and northwest edge of the Basin are the principal producing centers (Fig. 39). Nearly 85 per cent of the total production of wool is shipped down the Yangtse in raw material form. It is either exported directly to Great Britain or sold to local mills in Shanghai for manufacturing purposes.

•231 d) Silk.--Szechuan Basin has long been well known in all China for its production of yellow silk. The Basin is second only to the two most important silk-producing provinces of China--Chekiang and Kwangtung. Normally, the Basin produces about 20 per cent of the total silk production of all China, and has an annual output of 30,000 piculs.[2] In the past, silk has always been the leading export of the Basin. In 1930, a peak year, the total export amounted to 20 million dollars, which constituted 15 per cent of the total export silk trade of all China in that year.[3] But recently, on account of inefficient methods of

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[1]Bureau of Central Agricultural Research, Szechuan Provincial Government, Agricultural Statistics (1935).

[2]T. S. Fan, "The Past and Future of the Silk-worm Industry of Szechuan," Reconstruction Weekly, IV, No. 6 (1933), 34-42.

[3]China's Inspector-General of Customs, Analysis of Foreign Trade of China (1930).

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production and lack of uniformity in the product, together with the general world economic depression, Szechuan silk has suffered a great setback. In 1936, only about one million dollars' worth of Szechuan silk was exported. Of all the agricultural products of the Basin, the decline of silk is perhaps the most tragic.

There are three chief silk-producing areas in the Basin (Fig. 39): (1) The northern area, including Santai, Nanchung, Lan-chung, Si-chung, and nearby districts; normally accounts for about 40 per cent of the total production of the Basin, totaling about 15,000 piculs.[1] Here, particularly in the district of Santai, the world-famous Szechuan yellow silk is produced. (2) The southern and southwestern area includes Lo-shan, Mei-shan, Ching-shen, Fu-shun, Jen-shou, and Chi-chiang districts. Among them, Lo-shan is particularly well-known both as a producer of raw silk and as a large manufacturing center of silk piece goods. In 1936 Lo-shan alone accounted for over 20 per cent of the Basin's total silk production. (3) The eastern and south-central area includes Ho-chuan, Tung-liang, and Wan-hsien districts (Fig. 39). Normally, they each have an annual output of a little over 4,000 piculs.

There are two main species of silkworm raised in the Basin, namely, the Antheraa pernyi, a wild species, and the Bombyx mori, the regular mulberry-fed domesticated species.[2] The wild species is fed on the leaves of "cha shu" (Cudrania triloba) or scrub oak. In the Chi-chiang and Chi-hsien districts to the south, and Lanchung (Paoning) and Nanchung districts to the north, a considerable quantity of silk is obtained from this wild species. It is commonly claimed that worms of this wild species have the following advantages over the domesticated species: (1) the leaves of the Cha-shu (Cudrania triloba) come out a little earlier than the mulberry leaves and are usually cheaper in price; (2) the silk produced is tougher and stronger in texture; (3) the worms give more silk; and (4) two crops are possible yearly. This practice of raising the wild silkworm is particularly popular in the southern area, where Cha-shu trees are especially common.

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[1]The production figure of 1936 (Table 12) is low due to dwindling of export markets.

[2]C. H. Chiang, The Raw Silk, a Principal Product of Szechuan (1936), p. 39.

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231 In spite of what has been said above, the silk produced by the wild species is, on the whole, inferior in quality and is negligent in quantity in the Basin. The major portion of silk produced in the Basin, about 80 per cent of the total, is derived from the regularly mulberry-fed, domesticated species--the Bombyx mori.

Silkworm rearing takes place twice a year in Szechuan Basin, as against only once a year in many other parts of Free China. It is carried on principally as a side-line by individual farmers. No large organized enterprise for silk-raising has ever been attempted. This accounts for the low efficiency in the methods of production and is mainly responsible for the meteoric downfall of the industry during the past few years in the face of serious Japanese competition in the overseas silk markets.

654 231 Recently, the Bureau of Agricultural Research of the Szechuan Provincial Government, in view of this grave situation and the serious effects it has on the general agricultural economy of the Basin, has taken rigorous measures to improve the methods of silk production. A number of silk-raising experimental stations and breeding centers have been established throughout the silk-producing areas, particularly in Nan-chung, Lo-shan, and Santai districts. In each district, numerous sub-stations have been organized to guide the farmers in silkworm raising, mulberry growing, and silk-making. Lo-shan alone has fifteen such stations. Other projects have also been launched to furnish more modern equipment and to organize the whole silk-production industry on a scientific basis.

231 438 Szechuan silk made a bid for world fame about eleven years ago in 1930, when 4,000 piculs were exported via Shanghai. This favorable condition was maintained for several years. Then a slump occurred due to the competition of Japanese silk and the increasing use of rayon. The war has presented a magnificent opportunity to revive sericulture in the Basin, while the boycott of the Japanese product in America since the American-Japanese war has now further stimulated export of silk from Free China. Szechuan today remains the only big silk center in the interior, as the silk colonies in Yunnan, Sikang, and Shensi are only beginning to export. With the growing American demand for Chinese silk, the Szechuan Silk Corporation is doing its best to increase its output.

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The principal overseas market for Szechuan silk at present (shortly before the war) is in the United States, France, and Burma. For exports to the first two markets, silk is normally shipped down the Yangtse to Shanghai for overseas transhipment, whereas silk for the Burma market ordinarily goes by way of the Lo-shan-I-ping via Kunming, Yunnan route. The difficulty of transportation by way of the latter route is stupendous. Ordinarily it takes at least three to four months, by human carriers, for one trip from Lo-shan to Rangoon, Burma, and the transportation costs sometimes run as high as two-fifths of the value of the goods themselves. Unless transportation facilities along this route are improved, no matter how strongly the Burmese favor Szechuan silk, as has been the case thus far, the silk trade between Szechuan and Burma will always remain greatly limited. 231 438

Besides the difficulty of transportation, silk production in the Basin is now confronted by new handicaps. Silkworm rearing, formerly a profitable supplementary rural industry, has now given way to the production of grains (many mulberry fields have been converted into grain fields) which have been commanding high prices during recent years as a result of the increasing demand for foodstuffs due to the war.

e) Duck feathers and other products.--One cannot very well close this section on livestock production of the Szechuan Basin without mentioning another interesting product--duck feathers. The Basin normally has a total of over fifteen million ducks.[1] They are especially concentrated in the districts around Chengtu Plain, Lo-shan, I-ping, Yo-chi, and Pa-hsien (Fig. 39). Besides the wide use of the meat for food by the natives, the feathers are especially valued by the wealthy people for use in making light, warm and soft comforters, filling pillow cases and quilts, spinning yarn, weaving cloth, and a number of other uses. 237 [235]

The total production of duck feathers is estimated to be approximately 10,000 piculs annually. Approximately 70 per cent of the total product is shipped to markets overseas. Before the war, France was the leading customer, taking 30 per cent of the total export, with the United States and Great Britain each taking 20 per cent, and Germany and Japan each taking about 10 per cent. 237 439

[1] Report of the Bureau of Central Agricultural Research (1939), p. 63.

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The most commonly cultivated white-wax tree, the Pai Lou Shu (Praxinus Chinensis) is a fast-growing tree of medium size. In outer appearance it is very much like a willow tree but generally not as tall (Fig. 41). It prefers a mild and humid climate. It grows readily from cuttings of the one- or two-year-old branches of the mother tree. After three or four years the tree is suitable in size for wax production. It furnishes a rich sap, which by itself is of no value and is used to nourish the insect. The metamorphosis of the wax insect is similar to that of the silkworm. From egg it becomes larva, pupa, and eventually adult. It takes one year to complete its life cycle. It is the male larva which produces the wax, while the female merely lays eggs to carry on the line. The present strain in Ning-yuan district is said to be five hundred years old.

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During the early spring the eggs of the insects wrapped in leaves of the Tung or some other tree, with holes pierced for air, are suspended on the branches of the wax tree to hatch. Generally, the insect prefers the tender young branches of two- or three-year-old trees, of which the sap is rich and the epidermis of the branches is soft enough for the young insects to break through. Within forty to fifty days after the eggs are hatched the wax appears upon the tree and gradually increases until the early autumn (September), when the harvest begins. The snow-white wax accumulated on the main branches is scraped down with sharp knives, while the wax on small twigs is cut down with the twigs. The wax is then steamed and refined two or three times, until the pure white wax is precipitated.

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The white wax has a wide scope of uses, including candles, glazing for paper, silk, furniture polish, coating for pills, models, polish for valuable metal utensils to prevent oxidation, and many medicinal purposes. The residue from white-wax refining is often used for fertilizers. Formerly, about 80 per cent of the total product was exported to Japan and the United States. But it now finds its markets in the interior provinces, particularly in Kansu and Shensi. It is reported that Chinese wax is superior[1] to any other wax produced in the world because it has no smell and leaves no stain whatsoever. Of particular importance

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[1] J. S. Ho, "The Wax Tree Culture and Its Problems in Szechuan," Chinese Reconstruction Weekly, XI, No. 6 (1940), 11-18.

TABLE 12

PRODUCTION OF SILK IN SZECHUAN (1936)

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Name of District	Total Amount of Production (In Piculs)	Per Cent of Total
Lo-Shan	1,834	21.4
San-Tai	1,000	11.7
Si-Chung	986	11.5
Ho-Chuan	952	11.1
Tung-Liang	900	10.5
Fu-Shun	443	5.1
Shei-Hung	400	4.6
Hung-Ya	313	3.6
Ching-Shen	313	3.6
Lan-Chung	300	3.5
Chi-Hsien	227	2.6
Yung-Lien	200	2.3
Nan-Ch'ung	156	1.8
Tzu-Tung	110	1.2
Mien-Yang	87	1.0
Chien-Wei	80	.9
Han-Yuan	80	.9
Tang-Ling	50	.5
Ping-Shan	38	.4
Ma-Pien	14	.1
O-Mei	13	.1
Ho-Chiang	13	.1
Chao-Hua	12	.1
Kao-Hsien	11	.1
Total	8,532	100.0